Male Reproductive system

Reproductive Block

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Objectives

You should be able to Describe:

- List the different components of the male reproductive system.
- Describe the anatomy of the **primary & the secondary sex organs regarding** (location, function, structure, blood supply & lymph drainage).
- Describe the anatomy of the **male external genital organs.**

This lecture was presented by :

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You can find more quizzes by Clicking HERE!

Special Thanks to Saleh Aljanah and Abdulaziz Alqarni!

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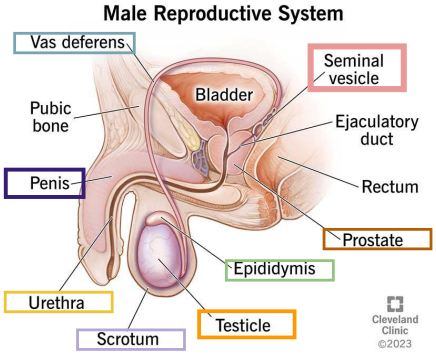
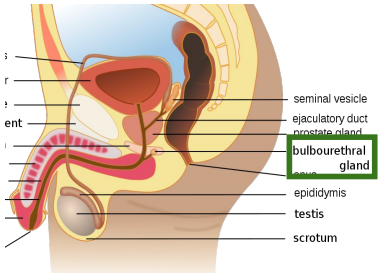
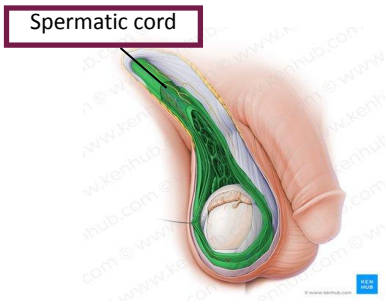
Components of Male Reproductive System

Male Reproductive System

Primary Sex organs	Accessory Sex Glands	Reproductive Conducting Tract	External Genitalia
Testis	1-Seminal vesicles 2-Prostate gland 3-Bulbourethral glands	1- Epididymis 2- Vas deferens 3- Urethra In female slide 4- Spermatic Cord	1-Penis 2-Scrotum In female slide







Scrotum

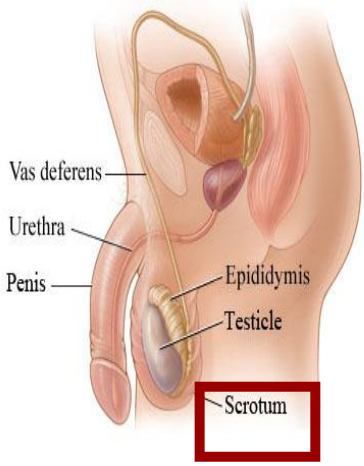
- An outpouching of loose skin & superficial fascia.
- The Left scrotum is lower than the right.

بسبب ان testis اليسرى تنزل قبل اليمنى ب شهر

Functions

- Houses & Protects the testis
- It has thin skin with sparse hairs and sweat glands.
- It Regulates testicular temperature (no superficial fat)
- The Dartos muscle lies within the superficial fascia & replaces Scarpa's fascia (superficial fascia of ant. abdominal wall).

لان testis فالأساس كانت ف abdomen لكنها تحتاج تنزل ل scrotum لأن حرارة الجسم (37 درجة)
تمنعها تكون sperms والحرارة ف scrotum أقل من حرارة الجسم ب 3 درجات فتصير قادرة على التصنيع



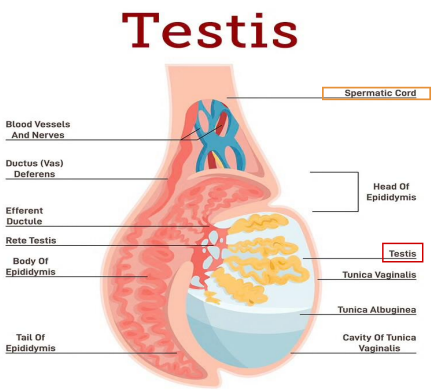
Testis

Introduction

- Testis or Testicle (singular), Testes (plural).
- Paired almond-shape gonads.
- Suspended in the scrotum by the spermatic cord.
- 4 - 5 cm long and Its weight (10.5 – 14) g and its volume is about 20-25 ml.

Functions

- Spermatogenesis
- Hormone production (Androgens - testosterone).



Coverings of testis

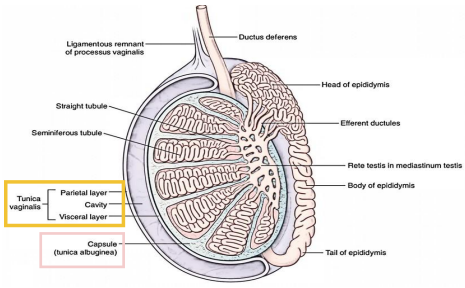
Tunica Vaginalis (outer):

- A Peritoneal covering, formed of parietal and visceral layers.
- It surrounds testis & epididymis. It allows free movement of testis inside scrotum.

Tunica albuginea (internal):

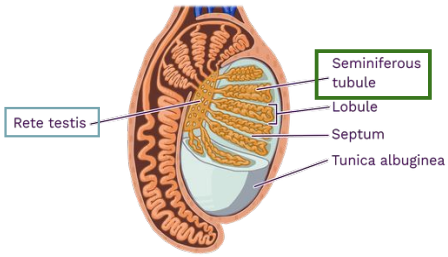
- It is a whitish fibrous capsule

Internal Structure of Testis



Fibrous septae extend from the capsule, divide the testis into a (200-300) lobules of testis. Each lobule contains, (1-3) seminiferous tubules.

Seminiferous Tubules : They are the site of the **spermatogenesis** and they form the bulk of testicular tissue.

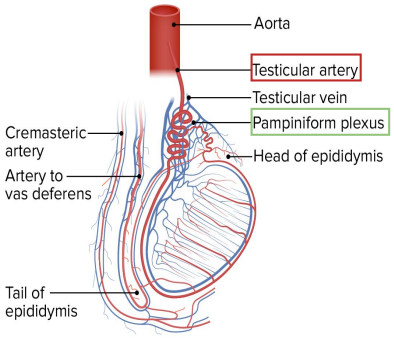


Rete testis : (a network of tubules) It is the site of merging of the Seminiferous tubules.

Supply of the Testis

Arterial Supply

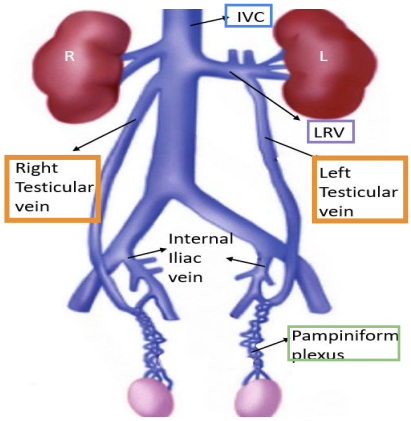
➥ **Testicular artery:** It is a direct branch from the abdominal aorta.



Venous Drainage

Pampiniform plexus of veins : Approximately a dozen veins which forms a network **in the spermatic cord.**

They become larger, converge as it approached the inguinal canal and form the **Testicular vein**.
Right Testicular Vein drains into IVC.
Left Testicular Vein drains into Left Renal Vein.



lymphatics drainage

Testicular lymphatics

Follow arteries, veins End in **Lumbar (para -aortic) nodes.**

(External genitalia)

Scrotum , penis, prepuce

Terminate in **Superficial Inguinal nodes.**

Ducts

1. Epididymis
2. Vas deferens
3. Ejaculatory duct & urethra
4. Spermatic cord & cremasteric reflex

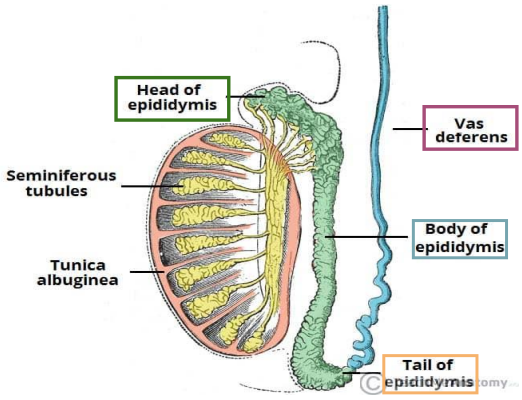
Ducts

Epididymis

- A **Single** coiled tubule 6 M long **Located on the posterior & superior margins** of the testis.
- It is divided into: **Head**, Body and Tail.
- The Head receives efferent ductules from testis.
- The Tail is continuous with **Vas Deferens.**

Function :

- Secretes/absorbs the nourishing fluid.
- Recycles damaged spermatozoa.
- **Stores spermatozoa Up to 2 weeks to allow for maturation.**

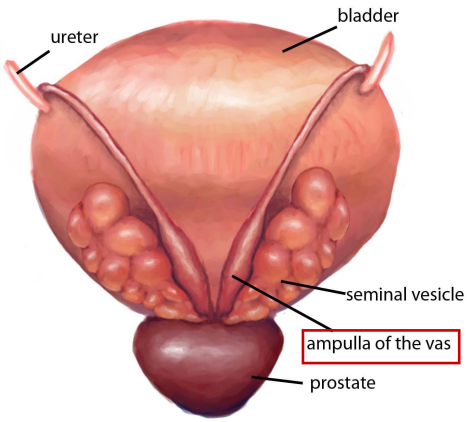


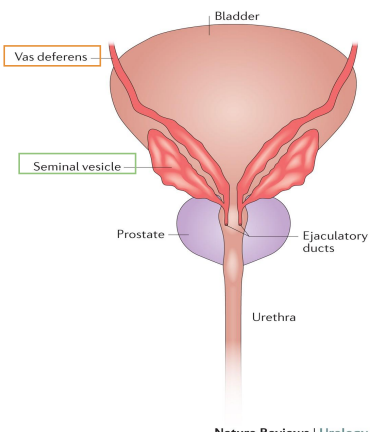
Vas deferens

- A Muscular tube 45 cm long.
- **Carries sperms from the Epididymis to pelvic cavity.**
- Passes through the inguinal canal and crosses the ureter in the region of ischial spine.
- Its terminal part is dilated to form the **Ampulla of the vas.**
- **It joins the urethra in the prostate**

Ejaculatory duct & urethra

- Formed by the **union of the lower end of the vas deferens and the duct of the seminal vesicle.**
- Its length is about 1 inch (2.5) cm
- The 2 ejaculatory ducts open into the **prostatic urethra.**
- They drain the seminal fluid into the prostatic urethra





Ducts

Female Slides

MCQ

Spermatic cord & cremasteric reflex

Indication:

- Evaluation of Testicular pain in case of (Testicular Torsion).

Technique :

- Examiner strokes or pinches upper medial thigh causes cremasteric muscle contraction.

Observe:

- Rise of the testicle on the same side.

Interpretation:

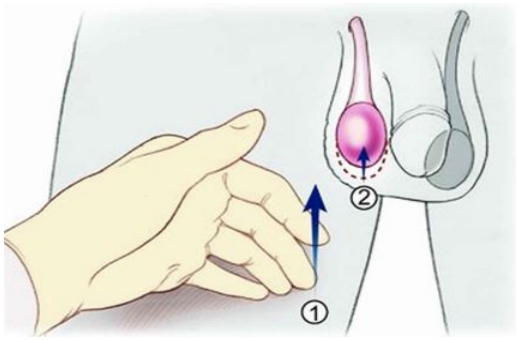
- Normal
- it's present with **Epididymitis.**
- **If Cremasteric reflex absent** (no Testicle rise) :
  It is **Suggestive of Testicular Torsion** in teens.
- Also **absent in 50% of boys under age 30 months .**
  Do not use this test under age 30 months

Efficacy :

- Test sensitivity for Testicular Torsion : 99% Assume age over 30 months.

Nerve involved :

- **Genitofemoral nerve** (GFN) **(L1,2)**
- **Sensory:** femoral branch of (GFN) & Ilioinguinal N.(T12&L1).
- **Motor:** genital branch of (GFN).

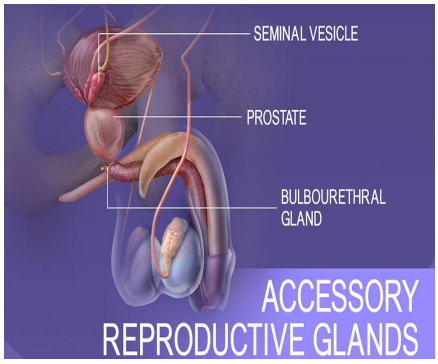


The reflex is elicited by:
1-Stroking the ipsilateral inner thigh with a tongue depressor or gloved hand, resulting in.
2- The elevation of the testicle through contraction of cremasteric muscle.
3- Affected nerve L1&2 spinal nerves.

Accessory gland

Functions

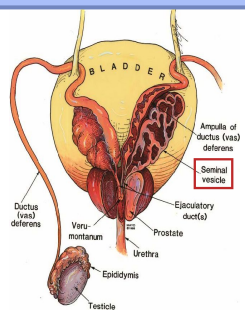
- Secretion of seminal fluid
- Nourishing, Activation & protection of sperms



Composed of :

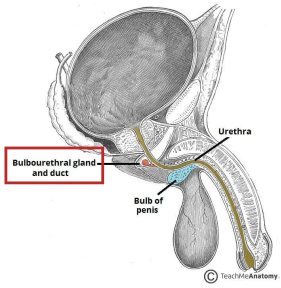
Seminal vesicle | Bulbourethral gland | Prostate gland

- Paired elongated glands.
- Located posterior & inferior to the urinary bladder.
- **Secrete (60% of Semen).**



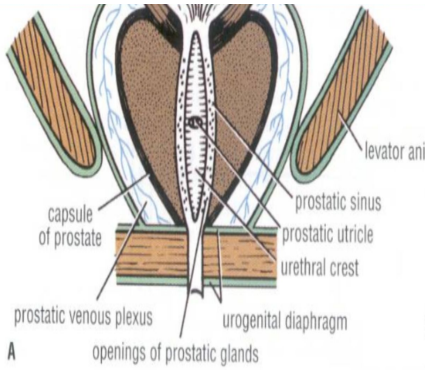
Seminal vesicle | **Bulbourethral gland** | Prostate gland

- Small paired glands
- Location at the base of the penis Secrete alkaline mucus for:
  - -Lubrication
  - -**Neutralization of urinary acids** of female



Seminal vesicle | Bulbourethral gland | **Prostate gland**

- The Largest Male accessory gland.
- Shape: Conical and contains
- Location: Neck of the bladder Houses the prostatic urethra
- Secretes 20-30% of semen
- Walnut sized

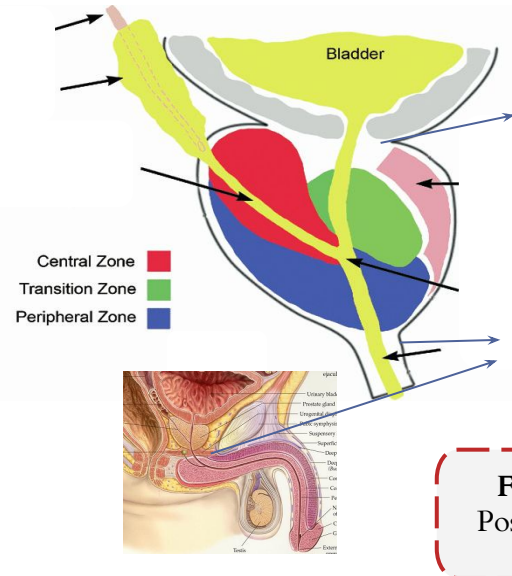


Prostate Gland

Function:

It secretes enzymes that have the following functions:

- Aids in activating sperm motility
- Mucus degradation
- Antibiotic
- Neutralizes Alkaline fluid of female reproductive tract



Base (superior) : attached to neck of urinary bladder

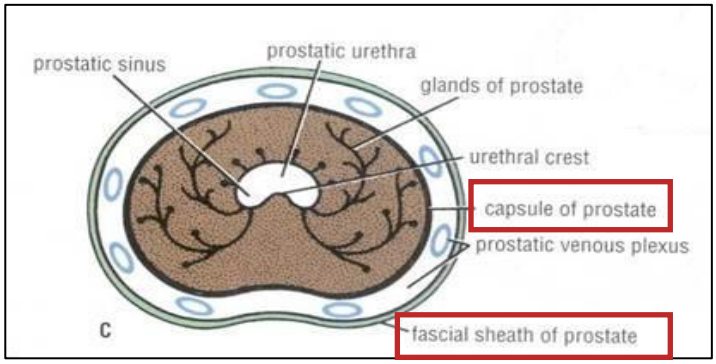
Apex (inferior) : On urogenital diaphragm

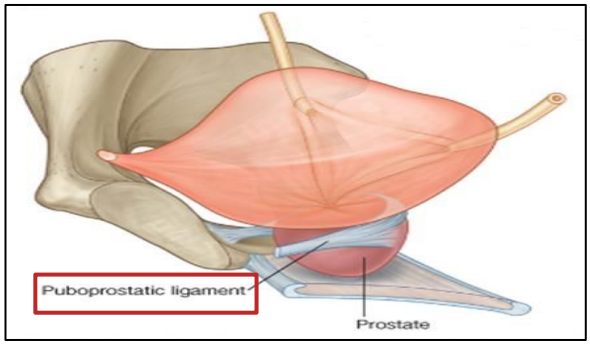
Four surfaces : Posterior, anterior, right and left

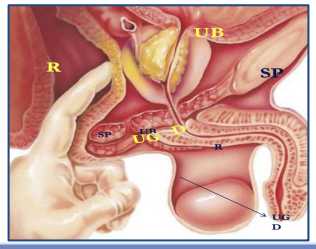
Capsule of the prostate

Internally: contains a dense fibrous prostatic capsule

Externally: it is surrounded by fascial / fibrous prostatic Sheath which is continuous with the puboprostatic ligaments (levator prostate).







Relations of the prostate

Surfaces				
Lateral	Posterior	Anterior	Superior	Inferior
Medial margins of levator ani muscles (levator prostate)	Rectum ® (important for PR Examination)	Symphysis pubis (SP).	Neck of urinary bladder.	Urogenital diaphragm, (UGD).

Prostate Gland

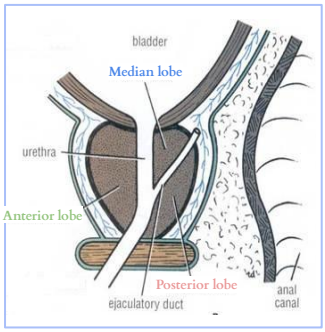
Lobes (Anatomically)

Anatomically :divided according to their relation to the urethra into (5) lobes:

Anterior (Isthmus):

Lies anterior to the urethra,
It is fibromuscular.

1



Posterior:

Posterior to the urethra and Inferior to the ejaculatory Ducts.

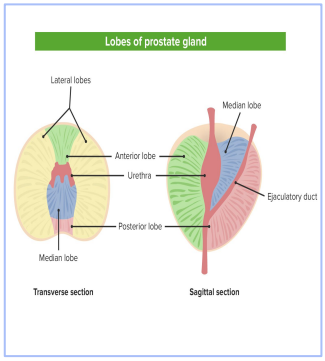
2

Two Lateral:

3

On each side of the urethra.

The Median & Lateral lobes are Rich in **glandular** tissue.



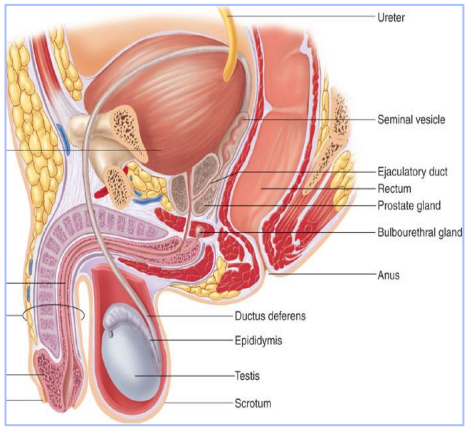
4

Middle (Median):

Between the urethra and Ejaculatory ducts & **closely related to neck of Urinary bladder.**

It may project into urinary bladder.

- Urologists & Sonographers, divide the prostate into **Peripheral** and **Central** (Internal) zones.
- **The Central zone** is represented by the Middle lobe.
- Within each lobe are four lobules, which are defined by the ducts and connective tissue

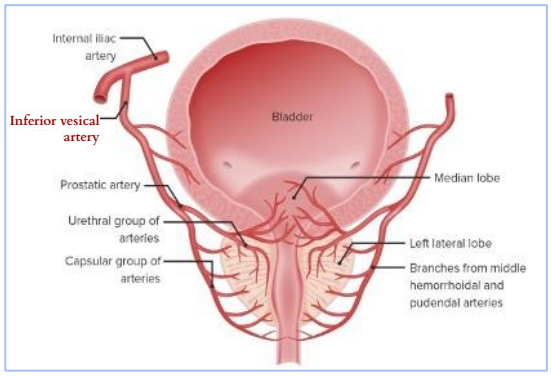


Supply of Prostate Gland

Blood supply

➥ **Arterial Supply: Inferior vesical** artery from the internal iliac artery

➥ **Lymph drainage:** Internal iliac lymph nodes.



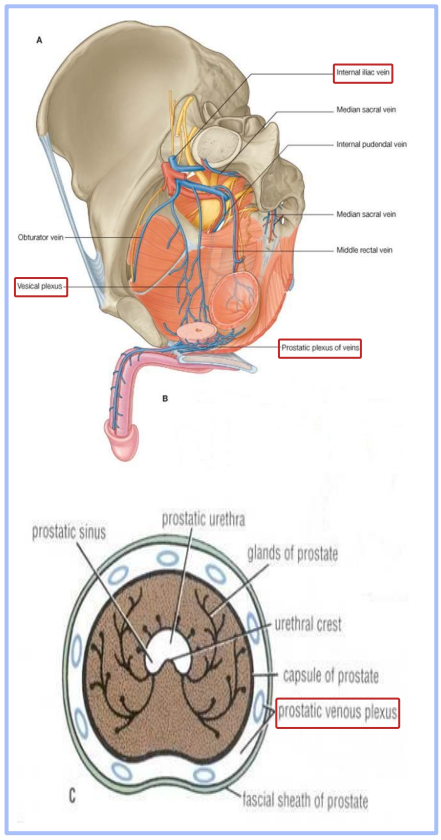
Prostate Gland

Venous Drainage

Prostatic venous plexus:
Lies between the prostatic fibrous capsule and the prostatic sheath.

It drains into the internal iliac veins.

It is continuous superiorly with the vesical venous plexus and posteriorly to the internal vertebral venous plexus (IVVP).



Hypertrophy of the prostate

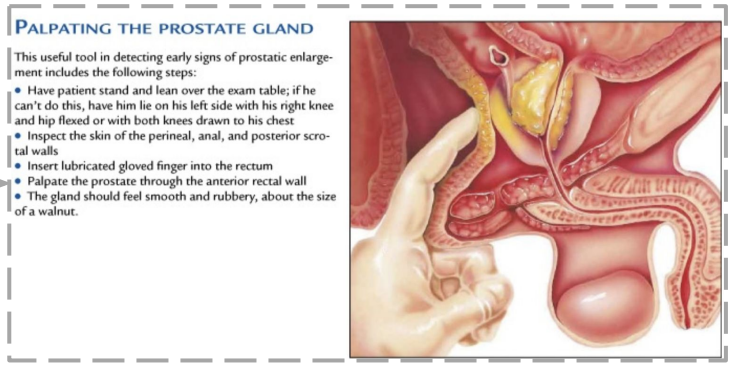
Benign:

- Common after middle age.
- An enlarged prostate projects into the urinary bladder and distorts the prostatic urethra.
- The middle lobe often enlarges the most, and obstructs the internal urethral orifice, this **leads to nocturia, dysuria and urgency.**

Malignant:

- It is common after the age of 55
- The malignant prostate is felt hard & irregular during PR
- The malignant cells metastasize through lymph and veins. Lymphatic metastasis to Internal iliac & Sacral lymph nodes, Later to distant nodes
- Venous metastasis to Bone & Brain through (IVVP)

EXTRA: Palpating the prostate gland



Prostatic Urethra

Structures seen on its posterior wall:

1

Urethral crest

It's a longitudinal elevated ridge.

2

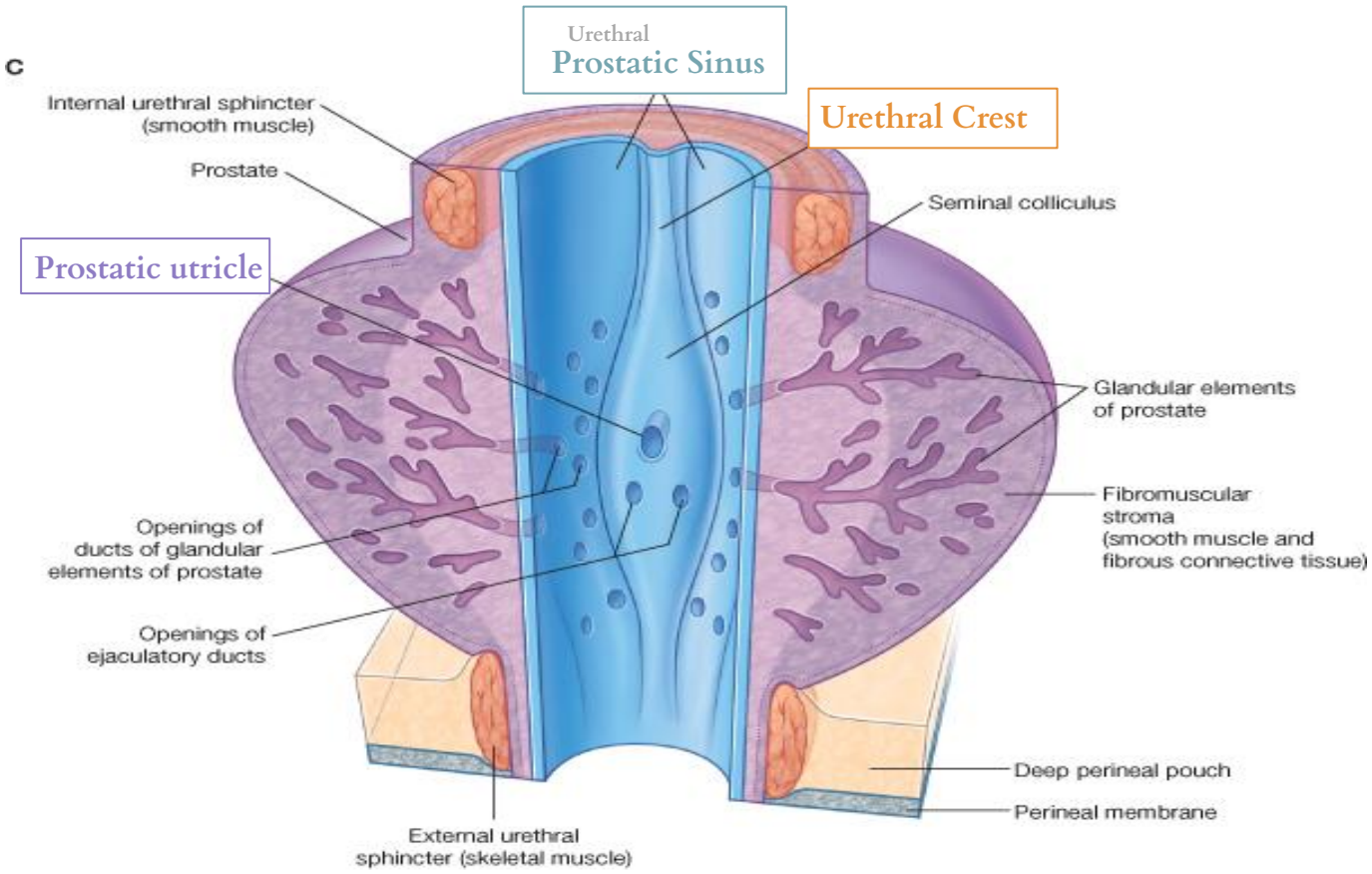
Prostatic/Urethral sinus

It's a groove on each side of the crest. The prostatic gland (Ducts) opens into the sinuses

3

Prostatic utricle

It's a depression on the summit of the urethral crest. The ejaclatory ducts open on the sides of the utricle.



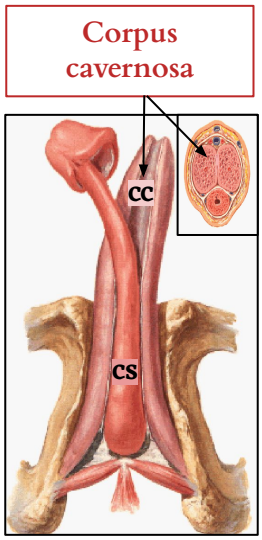
External Genitalia (Penis)

A Copulatory & Excretory organ

Excretory: Penile urethra transmits urine & sperm.

Copulatory: Has (3) cylindrical masses of erectile tissue
- Two Corpora Cavernosa
- One Corpus Spongiosum (CS)

Corpora Cavernosa



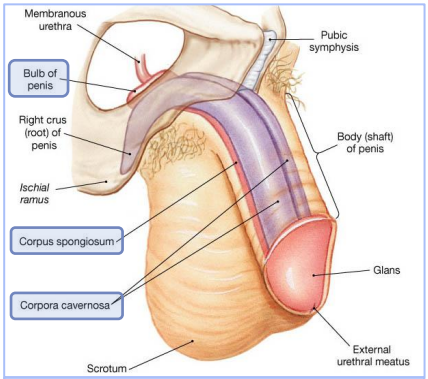
Superior Paired Right & left masses of **(Primary erectile tissue).**

They Provide the majority of rigidity & length of penis.

Their Posterior Expansions: form Crura (anchor" tissue) against pelvic bone.

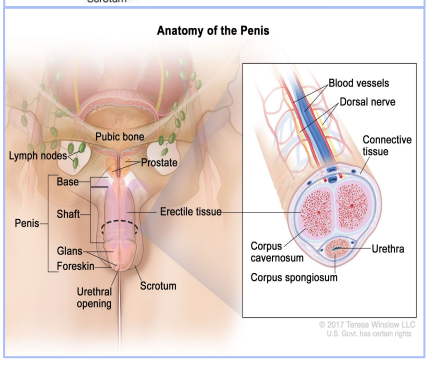
Corpora Spongiosum

The Inferior mass (A Secondary erectile tissue).



It is Traversed by the Penile urethra

Its Anterior expansion forms the Glans



Its **Posterior** expansion: forms Bulb of penis

Prepuce : Fold of skin covering glans (before circumcision).

MCQs

Q1- Prostatic ducts open into which of the following?			
A- Prostatic utricle	B- Membranous urethra	C- Prostatic sinus	D- Seminal colliculus
Q2- Which one of the following nerves mediates the cremasteric reflex?			
A- Ilioinguinal	B- Pudendal	C- Genitofemoral	D- Obturator
Q3- Which one of the following structures allows free movement of the testes inside the scrotum?			
A- Tunica albuginea	B- Dartos muscle	C- Tunica vaginalis	D- Cremasteric muscle
Q4- A patient has a seminoma of the testis. Which of the following lymph nodes will be affected?			
A- Internal iliac L.N.	B- Superficial inguinal L.N.	C- Paraaortic L.N.	D-Deep inguinal L.N.
Q5- A 42 year old man is suffering from skin carcinoma of the penis. Cancer cells are most likely to metastasize to which of the following lymph nodes?			
A- Superficial inguinal L.N.	B- Internal iliac L.N.	C- External iliac L.N.	D-Paraaortic L.N.

Answers: 1-C 2-C 3-C 4-C 5-A

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